

Burrowing Owl

(*Athene cunicularia*)



*The burrowing owl
is a welcome resident
on farms and ranches
because it preys on
rodents and insects
that are harmful
to agricultural interests.*



Burrowing owls (*Athene cunicularia*) are quail-sized owls that live in Utah during the spring and summer months. The species name *cunicularia* means "little miner." Burrowing owls are ground-dwelling birds that take up residence in abandoned mammal burrows. These owls are often found in association with prairie dog communities. In the 1800s, pioneers crossing the great plains wrote in their diaries about their sightings of *prairie dog owls*.

Description

The burrowing owl can be readily identified by its long, sparsely feathered legs, round head which lacks ear tufts, yellow eyes with bright white "eyebrows" and short tail.

Its plumage is a variegated pattern of dark and light brown with white spots. From neck to belly, its plumage is a lighter brown to white. A mature adult measures 9 to 11 inches in height and weighs about five ounces. The female is generally larger and darker than the male. The owl's wingspan measures 20 to 24 inches and its flight is strongly undulating. Often, the burrowing owl can be observed hovering during its flight.

Like all owls, burrowing owls have large eyes which cannot move like human eyes can. To compensate for this lack of movement, owls have the ability to rotate their heads approximately 270 degrees.

Habitat

Burrowing owls make their home in open, dry, treeless plains, deserts and farmlands. This species may be found in the prairie regions of western Canada, the United States, Central and South America. Interestingly, burrowing owls are also found in Southern Florida.

In Utah, their preferred habitat is arid grasslands and desert shrub lands of the Great Basin. Burrowing owls are also welcome residents on farms and ranches, because they prey on rodents and insects that are harmful to agricultural interests. However plowing, eradication of burrowing mammals (which the owls are dependent upon for shelter and nesting sites) and ever-expanding urbanization have forced these owls to seek alternative areas in which to survive. Burrowing owls have been found nesting at airports, golf courses and cemeteries. For example, around Salt Lake City, birders have observed owls near Salt Lake Airport #2 and at the Lee Kay Hunter Education facility.

Food Habits

Feeding mainly on insects, the burrowing owl consumes great numbers of grasshoppers and beetles. This owl also eats mice, voles, ground squirrels, toads and small birds, as well as animals which it finds dead. The burrowing owl

hunts by hopping, walking or running along the ground. It may also hunt from a perch or by hovering above the ground. Prey is caught and killed with the owl's talons. During inclement weather, the burrowing owl may remain in its burrow for many days without eating.

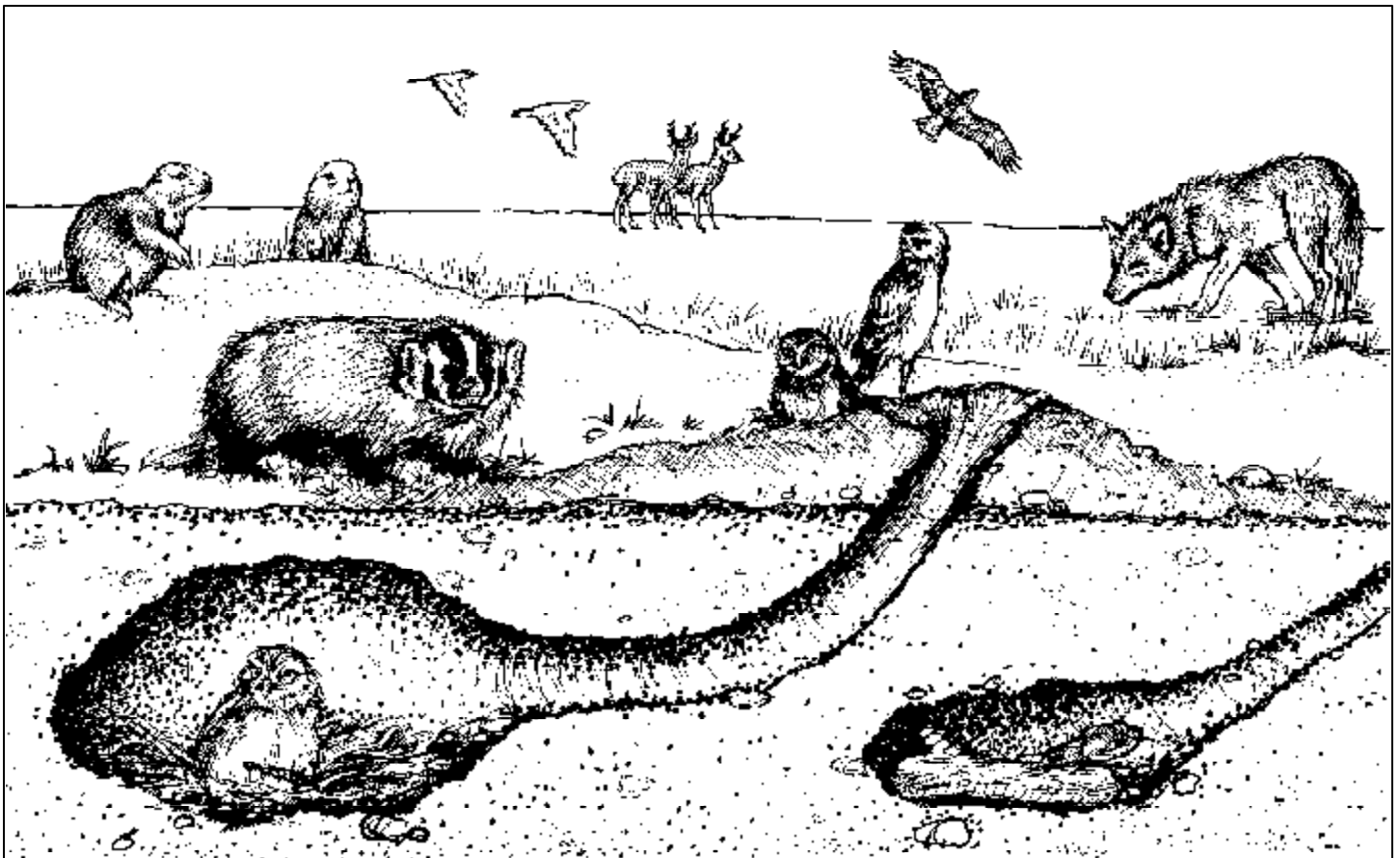
Behavior

Unlike most other owls, this owl can be active day or night. During the day, the burrowing owl perches (often standing on one leg) at the entrance of its burrow or on a nearby fence post. The burrowing owl feeds most often at dawn and dusk.

The burrowing owl is known for its habit of bobbing up and down to ward off intruders. When threatened, the owl fluffs its feathers to appear larger, drops and rotates its wings forward and begins to bob up and down in front of the intruder. Both the male and female will chase and strike at intruders that approach the burrow site.

The burrowing owl has quite an array of sounds. The adult has a main courtship song, seven calls associated with food begging and nest defense and five calls associated with mating. Another important sound that the burrowing owl makes is termed the *rattlesnake rasp*. The young have the innate ability to mimic the sound of a rattlesnake and make

Burrowing owls are often found in association with prairie dog communities.



this sound whenever the nest site is being disturbed. Scientists suggest that this call may deter potential predators from entering the nest.

Burrowing owls may nest alone or in colonies. Breeding colonies of up to 12 pairs is common. Colonization is often a result of the nest availability provided by abandoned prairie dog towns.

In Utah, burrowing owls begin to migrate during November. Although routes are difficult to verify, research suggests that owls nesting in Utah migrate toward Baja, California. Owls begin reappearing in Utah in March.

Reproduction

Upon their return to Utah in March, males begin the process of burrow selection. Burrows that are dug and abandoned by yellow-bellied marmots, badgers, rock squirrels, or prairie dogs are suitable sites. Burrowing owls have the ability to excavate holes when burrowing animals are absent, but rarely do so. If mammalian-made burrows are not available, these owls might nest in boxes or irrigation pipes. Burrowing owls have even been found nesting in the interior of buried cars.

After a burrow has been selected, courtship begins. Courtship rituals include flights involving rapid ascents to approximately 100 feet, hovering for 5 to 10 seconds followed by a rapid descent of 50 feet. Both the male and female take part in these flights. In addition, the male will perform circular flights of approximately 120 feet in diameter.

Burrowing owl pairs will then engage in mutual preening and bill rubbing. In addition, the male will present food to the female and sing to her.

Both members of a pair will renovate the burrow by digging with their beaks and kicking backward with their feet. All nest burrows will have one or more tunnel turns and a mound of dirt at the burrow entrance that can be used as a lookout perch. Just prior to egg laying, the male collects chunks of dry cow or horse dung and places them on the entrance mound. The female takes the dung, shreds it and uses it to line the burrow. The dung masks the scent of the owl and provides additional protection from predators. In one study of 25 nests lined with dung only 2 were lost to badgers, compared to 13 of 24 nests which were unlined. Nests are protected with dung throughout the breeding season and will be reused in subsequent years if undisturbed.

The female generally lays only one clutch, but may renest if the first clutch is destroyed early in the breeding season. A clutch usually consists of five to nine round, white



A young owl practicing hunting skills.

eggs. The female acts as the sole incubator of the eggs for 21 to 28 days. During this time the male does all the hunting.

At hatching, burrowing owls' eyes are closed and they are wholly dependent upon their parents for food and survival. The young hatch at different times. Even though the ages of their young may vary by as much as two weeks, parents will distribute food evenly among them. By 21 days, the young burrowing owls are running, hopping and flapping wings. At eight weeks of age, the young owls are practicing prey capture by chasing insects and jumping on dead or dying insects brought to them by their parents. Shortly after this stage, the young will begin hunting on their own.

Current Status and Management

Currently, the burrowing owl is included on the "Utah Sensitive Species List" as a *Species of Special Concern*. It has been listed as such because of declining populations throughout its range.

The foremost threat to burrowing owls is the loss of habitat. Expanding human settlement and road construction deplete habitat available to burrowing owls. Burrowing owls are also dependent upon the burrows dug by ground squirrels, prairie dogs and badgers. In many areas these animals have been considered pests and their numbers have been greatly reduced. Without the burrows

dug by these small mammals, the owls cannot find suitable nesting sites. Burrows are also destroyed by plowing and cultivation.

Other factors that have led to the decline of burrowing owl populations include pesticides, predators and automobile collisions. Pesticides used to reduce populations of small animals and insects also kill burrowing owls. Snakes, skunks, badgers, hawks, owls and domestic cats and dogs are some of the predators that threaten the survival of eggs and young owls. Automobile collisions usually occur at night when the owls are foraging for food.

With a more concerted effort to monitor owl populations and protect their habitat, the decline of burrowing owl populations in Utah could be stopped and the burrowing owl could be preserved for future generations.

What You Can Do

To assist in the conservation of the burrowing owl in Utah, concerned citizens can do several things:

- Participate in locating and reporting sightings of this owl to the Utah Division of Wildlife Resources.
- Write land-use planners, planning commissioners and legislators to express your concern and support for the preservation of this owl and its habitat.
- Organize a group to build artificial burrows that the owl could use for relocation. Contact the Division of Wildlife Resources for information on artificial burrows.
- If you live near burrowing owl habitat, prior to the use of pesticides, consider any possible effects the application may have on the owl or its prey base.

Additional Reading

Bent, Arthur C. *Life Histories of North American Birds of Prey, Part Two*. Dover Publications, Inc., New York, 1961.

Green, Gregory A. "Living on Borrowed Turf," *Natural History*. September 1988.

Haug, E.A., B.A. Millsap, and M.S. Martell. *The Birds of North America*. No. 61. Philadelphia: The Academy of Natural Sciences; Washington, D.C., The American Ornithologists' Union, 1993.

Walker, L.W. *The Book of Owls*. Alfred A. Knopf, New York, 1978.



Wildlife Notebook Series No. 11

Produced by: Project WILD

*Submitted by: Karen A. Lindsey and Lois A. Poswiatowski,
Utah State University Wildlife Management students
and their professor, Dr. Terry A. Messmer*

*Reviewed by: Dwight Bunnell, Habitat Development Coordinator
Bob Walters, Watchable Wildlife Program Coordinator*

Edited by: Heather Kimball Hales

Illustrated by: Jill Rensel (Images may not be reproduced)

Funding for this publication provided by The Berryman Institute, Department of Fisheries and Wildlife, Utah State University, Logan, Utah.



STATE OF UTAH
NATURAL RESOURCES
Division of Wildlife Resources

The Utah Department of Natural Resources receives federal aid and prohibits discrimination on the basis of race, color, sex, national origin, or disability. For more information or complaints regarding discrimination, contact Executive Director, Utah Department of Natural Resources, P.O. Box 145610, Salt Lake City, UT 84116-5610 or Office of Equal Opportunity, U.S. Department of Interior, Washington, D.C. 20240. The Division of Wildlife Resources is funded by the sale of hunting and fishing licenses and through federal aid made possible by an excise tax on the sale of firearms and other hunting and fishing-related equipment.